

Amendments to the Specification:

Please replace the paragraphs starting with "SUMMARY OF INVENTION," beginning on page 4, lines 14-31 and ending on page 5, lines 1-31 with the following amended paragraphs:

SUMMARY OF THE INVENTION

In order to solve the above and other problems, according to a first aspect of the current invention, an optical switching apparatus that receives optical signals from a plurality of input circuits and outputs the optical signals to an arbitrary one of a plurality of output circuits, including an optical signal adjusting unit for adjusting the optical signals after being received at the plurality of the input circuits to generate an adjusted optical signal, an optical signal switching unit connected to the optical signal adjusting unit for switching the adjusted optical signal to one of a first output port and a second output port, a first optical signal monitoring unit connected to the optical signal switching unit for monitoring the optical signal sent to the first output port, a second optical signal monitoring unit connected to the optical signal switching unit for monitoring the optical signal sent to the second output port, and a controlling unit connected to the optical signal adjusting unit, the optical signal switching unit and the first and second output signal monitoring units for controlling the optical signal adjusting unit based upon an output signal, the output signal being sent from the first optical signal monitoring unit if the optical signal is sent to the first output port, the output signal being sent from the second optical signal monitoring unit if the optical signal is sent to the second output port.

According to the second aspect of the current invention, an optical switching apparatus that receives optical signals from a plurality of input circuits and outputs an arbitrary one of the optical signals to an output circuit, including a first optical signal adjusting unit for adjusting an optical signal from a first input circuit to generate a first adjusted optical signal, a second optical signal adjusting unit for adjusting an optical signal from a second input circuit to generate a second adjusted optical signal, an optical

signal switching unit connected to the first optical signal adjusting unit and the second optical signal adjusting unit for outputting one of the first adjusted optical signal and the second adjusted optical signal, an optical signal monitoring unit connected to the optical signal switching unit for monitoring the optical signal from the optical signal switching unit, and a controlling unit connected to the first optical signal adjusting unit, the second optical signal adjusting unit, the optical signal switching unit and the optical signal monitoring unit for controlling the first optical signal adjusting unit and the second optical signal adjusting unit based upon the output signal from the optical signal monitoring unit, if the first adjusted optical signal is outputted, the controlling unit controlling the first optical signal adjusting unit based upon the output signal, if the second adjusted optical signal is outputted, the controlling unit controlling the second optical signal adjusting unit based upon the output signal. It is an objective of certain embodiments of the present invention to provide an optical switching apparatus with improved compensation functions for loss and loss differential between the channels in the optical switching apparatus, and a method of using this apparatus.

It is another objective of certain embodiments of the present invention to provide an optical switching apparatus, wherein the loss and the differential loss between the channels is easily compensated even when a high capacity optical switch is involved, and a method of using this apparatus.

It is yet another objective of certain embodiments of the present invention to provide a high speed and high capacity optical switching apparatus with a simple configuration and installation procedure, or by including simple hardware and software (or firmware) and a method of using this apparatus. This apparatus has few limitations to the wavelengths of the optical signals or the multiplexing methods, and easily and securely compensates for the loss and differential loss between channels of the optical signals even while the apparatus is in service.

It is still yet another objective of certain embodiments of the present invention to provide an optical switching apparatus and a method of using this apparatus without using special high function parts or control technologies with a simple configuration and

~~installation procedure or by means of simple hardware and software (or firmware).~~ This apparatus has a configuration in which surges would not cause optical parts to be degraded, and compensation for changes in the loss and loss differential among the channels is implemented even while the optical switching apparatus is in service.

Therefore, in one aspect, the present invention relates to an optical switching apparatus. The optical switching apparatus includes an optical switching unit with a plurality of input ports and a plurality output ports, a plurality of input signal adjusting units, and a plurality of output signal monitoring units. The optical switching apparatus further includes a controlling unit connected to the input signal adjusting units, the optical switching unit and the output signal monitoring units. The controlling units select at least one of the input signal adjusting units and at least one of the output signal monitoring units based on the configuration of the optical switching unit and control the amplitude of the optical signals by controlling the selected one input signal adjusting unit based on the feedback from the selected one output signal monitoring unit.

In a preferred embodiment, the present invention relates to an optical switching apparatus including an optical switch with a plurality of input ports and a plurality of output ports, a plurality of optical amplifiers, a plurality of monitor circuits and a controller that supervises and controls the optical switch, the optical amplifiers and the monitor circuits. The optical amplifiers are connected to the respective input ports of the optical switch, and the monitor circuits are connected to the respective output ports of the optical switch. The controller selects one of the monitor circuits according to prescribed rules and obtains the optical power and the differential loss between channels at the output port. The controller selects and controls at least one optical amplifier to according to the setup state of the optical switch. The selected amplifier amplifies the optical signal to be inputted to the input port of the optical switch, and the compensation for the loss and differential loss between channels of the optical switch is made for each input/output port pair of the optical switch. In other words, a pair of an optical amplifier on the input port side of the optical switch and an monitor circuit on the output port side of the optical

DOCKET NO.: HITACHI-0031

PATENT

Serial No.: 10/728,134

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Amdt. dated April 29, 2005

Rule 312 Amendment

~~switch is selected to compensate for the loss and the differential loss between channels of the optical switch for each of its input/output port pair.~~